What's a CEU?

“A Continuing Education Unit (CEU) is a measure used in continuing education programs, particularly those required in a licensed profession in order for the professional to maintain the license. Generally, a CEU is defined as ten hours of participation in a recognized continuing education program, with qualified instruction and sponsorship. CEU records are widely used to provide evidence of completion of continuing education requirements mandated by certification bodies, professional societies, or governmental licensing boards. The records also provide employers with information on training pertinent to particular occupations.

The term CEU is in the public domain. Any organization may award a traditional CEU without requiring any accreditation. With a traditional CEU an employer or other organization must decide on an individual basis whether to honor the CEU from a training provider.

Due to certain CEU providers not adhering to high standards, and the lack of standards for specific fields, there is sometimes a distrust of the value of a CEU, and accrediting organizations have been created to standardize what a CEU means. The International Association for Continuing Education & Training (IACET) offers the most industry wide accreditation of CEUs. Specific industries, such as nursing, health, etc., have their own accrediting processes for CEUs. Any accredited CEU generally has a preface of the accrediting body. For instance training institutions accredited by the IACET can offer IACET CEUs.”

1 From Wikipedia, the free encyclopedia, February 19, 2009
How do we become an Authorized Provider?

NCSLI has been seeking to become compliant with the ANSI/IACET standards for several years. When we began the process, IACET had “guidelines.” In 2007, they partnered with ANSI to issue the ANSI/IACET Standards for Continuing Education and Training. Ideally, NCSLI will undergo an audit and become an Authorized Provider to provide greater credibility to the CEUs offered at NCSLI Workshops and Symposia (conferences), Tutorials, Regional Training Events, and possibly even Section Training sessions in the future. Becoming an Authorized Provider of CEUs is much like becoming an Accredited calibration laboratory. Becoming authorized is our next step in gaining professional credibility as an educational organization.

IACET notes that IACET CEUs may be awarded by a college, association, company, or any other organization willing and able to meet each of the requirements in the ANSI/IACET 1-2007 Standard established for the use of the IACET CEU. The Authorized Provider application process is an authorization process whereby the organization submits representative samples of its educational offerings to be reviewed for compliance with the Standard. The applicant also agrees to an on-site visit to verify the contents of the written application.

What are the ANSI/IACET Requirements?

There are ten key “standards” (Items) in the ANSI/IACET standard. As anyone familiar with standards knows, there are subsections and requirements for each criteria. Appropriate policies and procedures must be documented and followed. And, of course, we need to conduct regular internal audits and we must have adequate evidence that we comply with the standard. The following ten sections give you an overview of the criteria and how NCSLI complies or is working to address each component of the standard.

1. Continuing Education and Training Organization (2): The Provider must have an identifiable continuing education or training (CE/T) unit or group with assigned responsibility for administering continuing education and/or training events/programs.

NCSLI’s Articles of Incorporation specifically designate us as an educational organization. The business office staff maintain records for participants, sessions, and instructors. The data has been used to compile the submissions that are sent to the Combined Federal Campaign. Our organizational mission statement specifically addresses metrology education and training, we need to have an organizational chart showing where the responsible unit or group fits (see the latest Who’s Who), and we need to have position descriptions identifying responsibilities for continuing education and training events. This is the same kind of information you need to have for your accredited calibration laboratory, right?

2. Responsibility and Control (3): The Provider, through its CE/T unit, has established an appropriate system of responsibility and control for ensuring consistent application of each CE/T standard and supporting criteria.

NCSLI needs to have an internal, periodic review of the policies and procedures, and evidence to support that we are following them. Of course, anyone doing the assessment must be qualified and have a position description stating their responsibility for compliance. Some of our current guidelines for the conference, Tutorials, and Regional Training Events (RTEs) address this item. Additional effort is needed to document responsibilities for the business office staff in this area. We also have to have a documented process for how we calculate CEUs for each learning program. For the conference and Tutorials we have communicated this information in cover letters. For the RTEs we have included the description in the course planning documents. We need to have a generic procedure that can be applied to all CEUs. Because 1 CEU equals ten contact hours, this last item is pretty straightforward – as metrologists, most of us are pretty good with numbers!

3. Support Systems for the Learning Environment (4): A learning environment and support services are provided that reflect the intent of the program and are effective for achieving all expected learning event/outcomes.

The organization needs to have a process in place to ensure that we have all of the essential resources to support a quality education and training program. The trickiest part of this for NCSLI is that the criteria include all sites where a learning event is held. For example, we have site selection criteria and we have meeting coordinators to ensure that we have adequately addressed room, lighting, and temperature control at conference and Tutorial sessions. But, we also need to ensure that we have guidelines for Region/Section and RTE coordinators to ensure a physical environment that is conducive to learning. (How often have you sat in a room that was too dark, too warm, or in uncomfortable chairs?) If there are technology requirements, we have to notify the participants of requirements in advance (e.g., “Computers will be required for this session”). We also need to have learner support services available that are appropriate for the learning program. For example, in the Boulder Training facility, we have power cables and internet services available for laptops, restrooms close by, and a kitchen for convenient breaks.

4. Learning Event Planning (4): Each learning event is planned in response to the identified needs of a target audience.

Formal “needs assessment” methods are one of our current systematic weaknesses. We have coordinators for Tutorials and Sections who have
pretty good insight into what the training needs are. Course evaluation forms we are now using for the conference, Tutorials, and RTEs contain questions about needs assessments, but ensuring that identified needs are summarized and used in planning subsequent events are not yet coordinated. We need this information for Region/Section meetings as well. Many Region/Section coordinators have conducted local needs assessments to find out what topics and speakers would most interest their sections. Unfortunately, the information is typically only used locally and not shared with other regions/sections and is not centrally collected or coordinated. We must have a documented system or process for gathering or centrally summarizing training needs information. Identified needs are also supposed to be related to the learning outcomes as noted in the next section and the course/program evaluation process must feed back into the event planning.

Guidelines for the conference and Tutorials and for RTEs already identify some of the constraints and parameters (e.g., size limits, number of sessions, funding/budgets, instructor availability). Information about each event is also identified and communicated prior to the learning events.

5. Learning Outcomes (4): The Provider has clear and concise written statements of intended learning outcomes for each learning event based on identified needs.

In 2008, we added learning objectives to the annual conference. However each learning event (and session) needs to identify measurable outcomes that are clear, specific and concise. Learning outcomes need to be established for each session within a large event like our conference. Instructional delivery needs to include specific learning objectives before content is discussed. Learning objectives are typically based on Bloom’s Taxonomy (as noted in the ANSI/IACET Standards). Bloom’s domains are divided into three domains, Cognitive (Knowledge), Affective (Attitude), and Psychomotor (Skills). In the Cognitive category there are six major levels of understanding as shown in Figure 1. Example verbs for describing what a learner needs to be able to “Do” are shown in Table 1.

This is a current weakness in many of our training events. For example, “objectives” provided in papers and training events often say “we are going to cover this, that, and the other thing” rather than “at the end of this session you will understand the calibration procedure and be able to successfully calibrate this widget in a proficiency test.”

We will have a train the trainer session at the 2009 annual conference for all Tutorial instructors so that we can begin identifying learning objectives and including them in our planning, resources, and instructional content. This is one of the key topics selected for the 2009 Train the Trainer event. Ideally, learning objectives will be established for technical sessions at the conference as well as for RTEs and local Region/Section meetings.

6. Planning and Instructional Personnel (5): Qualified personnel are involved in planning and conducting each learning event.

Figure 1. Bloom’s Taxonomy of Knowledge
This section of the standard requires that those involved with planning and delivery of training are 1) highly qualified; 2) participate in professional development in technical areas as well as learning methods; 3) have a high standard of professional conduct; and 4) disclose any proprietary interests or third-party compensation. As an organization, we are also required to have policies and procedures regarding intellectual property rights. While we do not know of specific problems in this Item and we do have policies regarding “sales pitches” in our training sessions, we do not generally have other documented policies and procedures for this Item for the conference or Tutorials. The application process for instructors as a part of the Regional Training Event (RTE) program addresses these items because we designed the RTE guidelines based on the IACET criteria. The one-day “Train the Trainer” session at the conference this year in San Antonio, Texas and trainer certification seminar at the Boulder training facility, September 14 to 18, 2009 is to encourage professional development in learning methods for technical experts who are currently teaching.

7. Content and Instructional Methods (3): Content and instructional methods are appropriate for each learning outcome.
Sample course outlines showing that content supports learning outcomes are one item we need to obtain for courses as described in this Item. Additionally, the standard requires that instructional methods are consistent with, and facilitate, learning outcomes regardless of the delivery mode. In addition, various learning styles must be considered by the instructors, with flexibility encouraged to meet learning objectives. Adult learning styles are another topic that will be covered in the train the trainer events this year.

8. Assessment of Learning Outcomes (3): Procedures established during event planning are used to assess achievement of the learning outcomes.
This Item covers three areas: the use of needs assessment documents to aid in planning training events, assessments that cover achievement of learning outcomes, and how participants are provided feedback on their learning. Our current evaluation process is generally handled via course evaluations. The learner must take responsibility for identifying (self assessment) what they have learned and will be able to apply from the training event. The standard notes that a self evaluation is insufficient to indicate that learning has occurred and that instructor feedback to the participants on their mastery of the content is needed. There are a number of ways this can be done. We are currently using an Instructor Evaluation form for each RTE to assess the student learning, but feedback is not individualized for each participant.

Table 1. Bloom’s Taxonomy Knowledge Abilities

<table>
<thead>
<tr>
<th>Level</th>
<th>Example Verbs. Participants will be able to _____ upon completion of the training.</th>
</tr>
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<tbody>
<tr>
<td>Knowledge</td>
<td>Describe, identify, recall, arrange, define, duplicate, label, list, memorize, name, order, recognize, reproduce state.</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Comprehend, give example, classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate,</td>
</tr>
<tr>
<td>Application</td>
<td>Apply, change, construct, compute, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write.</td>
</tr>
<tr>
<td>Analysis</td>
<td>Analyze, break down, relate, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, make inferences, find evidence, test.</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Summarize, arrange, combine, categorize, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write.</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Appraise, interpret, argue, assess, attach, compare, defend, estimate, judge, predict, rate, core, select, support, value, evaluate, prove, deduct.</td>
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In the typical educational system and many of the CD-ROM courses used in the measurement arena, a “test” is given to participants to measure their learning. Most instructors are leery of using testing for adult continuing education. In some courses, a certificate of successful completion is not offered unless participants meet objectives that were stated in the beginning of the course. In other measurement courses, hands-on laboratory measurements or proficiency tests are assigned as follow-on activities. In these cases, the CEUs may not be offered until the assessment is completed. We need some creative ideas for this kind of assessment in each of our training events and we need to keep it as simple as possible.

9. System for Awarding the CEU and Maintaining Learner Records (4):
The Provider maintains a complete, permanent record of each learner’s attendance and satisfactory completion of CEUs, and can provide a copy of that record upon request.
The NCSLI business office maintains databases for attendance and participation at the conference, Tutorials, RTEs and those Region/Section meetings that use the on-line registration system. These records are available when we prepare summary reports for our training efforts (such as those we submit with the Combined Federal Campaign application). What is missing are documented policies to provide student records/transcripts and to ensure privacy and security. The records are currently available to students and information is currently secure, but we need to develop the documented policies. None of the information is available on-line or accessible through the Internet at this time. If information becomes available on-line, we will need to ensure suitable security and privacy policies are in place and followed.

10. Program Evaluation (4): The major elements of a program are evaluated at the conclusion of each learning event for the purpose of continual improvement.
This section requires a comprehensive program evaluation process. Evaluations, such as those described in Kirkpatrick’s “Learning and Training Evaluation Theory” (references available to members in the Training Aids Library) need to be used. The evaluation needs to include more than “smile sheets” to assess whether everyone was happy with the training. They must also evaluate the learning, behavior, and results of the course. Instructors also need to be consistently effective in meeting learning objectives and learners’ expectations.
The NCSLI evaluation process was modified in 2008 to address the Kirkpatrick model for the conference and Tutorial evaluations (for CEUs). The same evaluation forms was originally integrated into the RTE program. These new evaluation forms also address the “needs assessment” components, but needs have not been fully analyzed or incorporated into planning efforts as described in Item 4. NCSLI appears to be in pretty good shape for this Item and we expect ongoing improvements. The assessment system is expected to be automated via the NCSLI website in the near future to allow greater flexibility in analyzing our entire system of training programs as well as integrating the needs assessment into Item 4.
So, who cares?

Many metrologists have expressed a desire for greater professional recognition. Maintaining records of courses attended, especially if they offer formal CEUs, is one way to document ongoing professional development. NCSLI offered CEUs from 2001 to 2004 with a formal relationship with Sinclair Community College (OH). Issuing CEUs at that time required NCSLI to pay a per person and per event fee for administration. In 2005, NCSLI began the process of complying with the IACET guidelines standards. NCSLI has been tracking events, names, and data required for issuing CEUs for much longer than we have actually offered them. NCSLI has processed the CEU certificates since 2001. You can see the interest from NCSLI conferences and Tutorials for CEUs. This is a FREE benefit for much longer than we have actually offered them. NCSLI has processed the CEU certificates since 2001. You can see the interest from NCSLI conferences and Tutorials for CEUs. This is a FREE benefit.

Participants: If you are a participant at the NCSLI Annual Workshop and Symposium or conference Tutorials, you can complete the evaluation forms to ensure we get adequate feedback on instruction, logistics, levels of learning, and future training requirements. Your feedback is critical for compliance to the standard, but more importantly, is essential for ensuring ongoing improvement in NCSLI educational efforts. You can also request your CEUs for the sessions. This is a FREE benefit that comes with your individual or organizational membership. If you (or your organization) are not a member, the cost is minimal. You can also let me know what you think about CEUs and whether you would like to be more involved in the CEU assessment process (gharris@nist.gov).

Coordinators: Whether a conference coordinator, a host for a Regional Training Event, or even a Region/Section coordinator, you can assist us in complying with the standard. You can register your sessions and provide an abstract for each title, ensure your instructors are registered and qualified, (you only need to obtain a biography). You also can help by conducting session evaluations. As noted before, even if you are not interested in CEUs for your session, the evaluations provide essential information about what went well, what can be improved, and what future training and sessions are needed by the participants. You may have noticed at the 2008 conference that we included Learning Objectives and provided resources for you to apply what you learned back on the job. We also conducted follow-up surveys to begin identifying areas of application and the impact of our educational efforts. You can include Learning Objectives at local training events as well. Some of the recent feedback we have gotten at the Board of Director’s level is that participants are more able to justify attendance at a local “training event” than a “meeting.” Think about presenting your local region and section meetings as a training event.

Instructor/Training Providers: As a speaker at the conference you are asked to submit a biography that is used to introduce you to the audience. You normally would include your formal education and work experience, i.e., your technical qualifications. But, you can also include your teaching qualifications. This information is important for local section training events as well as the conference. NCSLI has tracked instructor information from the Tutorial programs held at the annual conference, but we need this for other events as well. We are encouraging instructors to register themselves and their courses so that we have a database of potential instructors and contacts. You can also make sure you start each session by addressing the Learning Objectives, close each session by providing feedback to participants on whether they have met the Learning Objectives and use course evaluations. You can also attend the train the trainer sessions to ensure that your understanding about Learning Objectives matches what the standard requires and that you have a good awareness of adult learning styles and approaches. If you have additional ideas about how NCSLI can improve the professional credibility of our educational programs, please feel free to contact me at gharris@nist.gov.

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